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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/940,788	08/29/2001	Yuji Ono	011075	4613

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EXAMINER

PERRIN, JOSEPH L

ART UNIT	PAPER NUMBER
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1746

DATE MAILED: 03/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/940,788

Applicant(s)

ONO ET AL.

Examiner

Joseph Perrin, Ph.D.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 February 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Examiner's Comments

1. In view of Applicant's response filed 10 February 2003, the status of the application is as follows:

Claims 1-3 are pending in the application in view of the aforementioned amendment canceling non-elected claims 4-14.

The rejection of claims 1-3 under 35 USC 112, second paragraph, is withdrawn.

The rejections of claims 1-3 under 35 USC 102(b) are maintained.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by US 5,377,708 to Bergman et al.

Bergman et al. discloses the claimed invention of a wafer wet-cleaning method by applying a spin dry process to a wafer by supporting and rotating the wafer and supplying an inert gas, such as nitrogen, at the outer peripheral portion of the wafer, such that the sealed drying space is formed at the outer peripheral portion of the wafer

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and an inert gas atmosphere is achieved (see entire reference of Bergman et al., for instance, Figure 1, col. 8, lines 19-22).

It is noted that the text of Figure 1, specifically col. 9, lines 19-26, clearly states that:

"[t]he drying gas can be input into the processing chamber via a plurality of circumferentially spaced ports which are at approximately the same elevation as the wafer or slightly below and **oriented to direct** the flow of drying gas across the processed wafer surface." (emphasis added).

It is clear that since the drying gas is required to be applied (oriented) "via a plurality of circumferentially spaced ports" (i.e. each towards the center) to the outer edge of the wafer inward, and that the center of the wafer is absent a gas outlet which would result in equal gas passage across the outer edge of the wafer at each circumferentially spaced port and center of the wafer, the outer edges of the wafer in Bergman et al. must inherently incur more drying gas than the center of the wafer.

4. Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by US 4,544,446 to Cady.

Cady discloses the claimed invention of a method of wet-cleaning wafers by spin drying a wafer while flowing inert gas, such as nitrogen, to the face of the wafer (see entire reference of Cady, for instance, Figures 1-2, col. 3, lines 38-49, and col. 4, lines 48-56). Cady also discloses the sealed drying space 40 is sealed for "removing any entrained and undesirable gases or contaminants", and supplying inert gas such that

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the gas supply at the outer peripheral portion is larger than that of the center portion (see entire reference, for instance, col. 7, lines 44-58, and Figures 6-8B, respectively).

Response to Arguments

5. Applicant's arguments filed 10 February 2003 have been fully considered but they are not persuasive.

6. Re Bergman, applicant argues that Bergman does not meet the limitation of "the amount of inert gas being supplied at the outer peripheral portion being larger than that at the center" alleging Bergman as teaching to "direct the flow of drying gas across the processed wafer surface." This is not persuasive because Bergman discloses inputting the drying gas via a plurality of circumferentially spaced ports which are "oriented to direct the flow of drying gas" (emphasis added). The application of drying gas circumferentially around the edge of the wafer inward, without a drying gas outlet at the center, must inherently supply more drying gas to the outer edge of the wafer relative to the center of the wafer.

7. In response to applicant's argument that the references fail to show certain features of applicant's invention (the apparatus of the present invention in comparison to Bergman's apparatus), it is noted that the features upon which applicant relies (i.e., the apparatus of the present invention) are not recited in the rejected method claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

8. Re Cady, applicant argues that there is no teaching in Cady "that Cady's apparatus can achieve the limitation of claim 1 of the amount of inert gas being supplied at the outer peripheral portion being larger than that at the center" and that "the outer edges of Cady's wafer inherently get a smaller flow of gas per unit area than the inner portions." This is not persuasive because, for instance, col. 3, lines 38-49, Cady clearly states "[a] common method utilized for drying is spin drying" and that "a flow of nitrogen directed at the center of the wafer is needed to move the droplets." Embodiments of Cady, for instance Figures 6-8B, clearly show fluid flow guides such that the flow of fluids, such as nitrogen drying gas, direct the gas supply more towards the outer periphery than to the center.

9. In response to applicant's argument that Cady's apparatus is "inconsistent" with the present invention, and that Cady's apparatus "lets the gas leave at the outer peripheral portion", it is noted that applicant's apparatus also lets the gas leave at the outer peripheral portion of the wafer and, therefore, the argument is not found persuasive.

Conclusion

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

11. A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within

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TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph Perrin, Ph.D. whose telephone number is (703)305-0626. The examiner can normally be reached on M-F 7:30-5:00, except alternate Fridays.

13. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on (703)308-4333. The fax phone numbers for the organization where this application or proceeding is assigned are (703)872-9310 for regular communications and (703)872-9311 for After Final communications.

14. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0661.

Joseph Perrin, Ph.D.
Examiner
Art Unit 1746

jl
March 7, 2003



RANDY GULAKOWSKI
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700